ALADWAA Gem

2026

MATHEMATICS

نماذج اختبارات الأضواء

لشهر مارس

الصف 2 الإعدادى

الفصل الدراسى الثانى

موقع الدكتور محمد رزق معلم الكيمياء التعليمي D.M.RAZK

MODEL I

10

1- Choose the correct answer: 2

a What is the second proportional for the numbers 4 , 6 , 12? ..... (18 , 8 , 6 , 2)

b If $\frac{a}{b} = \frac{c}{d} = \frac{2}{3}$, then $\frac{a+c}{b+d}$ = ... $\left(\frac{4}{3}, \frac{4}{9}, \frac{1}{3}, \frac{2}{3}\right)$

2- Answer each of the following: 8

a If X = {5} , Y= {2 , 3} , Z ={2 , 4 , 5}, find each of the following:

(1) Y × (Y ∪ Z) (2)(X ∩ Z)×(Y ∩ Z) (3) (Z - Y) × (Z - X)

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b If $f(x) = 2x + 3$ and $f(k) = 11$,find the value of k:

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c If x , y , 27 are in proportion, and $x - y = 30$, find each of x , y

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d Find the solution set of the following inequality in $\mathbb{R}$ and represent it on the number line.:

$6 - 3y \leq 2(y - 2)$

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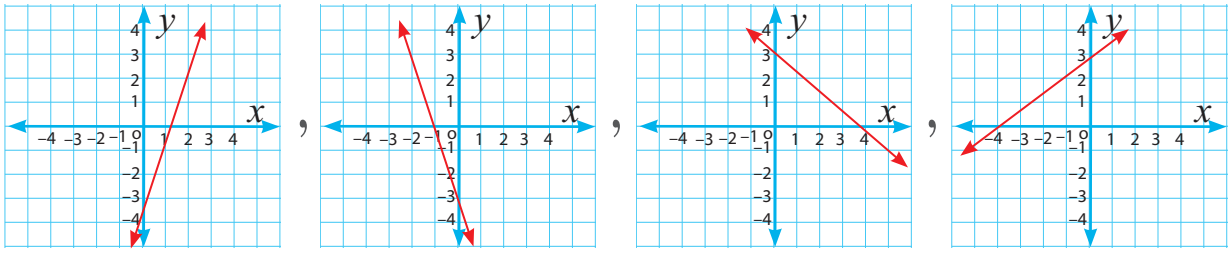
D.M.RAZK موقع الدكتور محمد رزق معلم الكيمياء التعليمي

MODEL 2

10

1- Choose the correct answer: 2

a Which of the following graphs represent the function: $f(x)=3x-4$?



b If $(a, 3) = (-2, b)$, then $a+b =$ ..... .

$(-5 \ , \ -1 \ , \ 1 \ , \ 5)$

2- Answer each of the following: 8

a If $\frac{2x+3}{2x-3} = \frac{2y+5}{2y-5}$, then prove that: $\frac{x}{y} = \frac{3}{5}$

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b Find the solution set of the following inequality in $\mathbb{R}$ and represent it on the number line:

$$1 \leq 4 - 3(x-1) < 13$$

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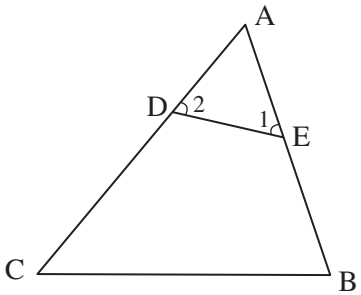
c In the following figure:

$AC > AB$, $m(\angle 1) = m(\angle 2)$

prove that: $DC > EB$



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d Find the number which if added to each of the numbers: 7 , 12 , 11 , 18 they become proportional numbers:

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MODEL 3

10

1- Choose the correct answer: 2

a If $f(x) = x^2$, $g(x) = x + 4$, what is the value of: $5f(2) + 2g(5)$? .....

(18 , 20 , 70 , 38)

b In Δ ABC: 1 ..... $\frac{AB+BC}{AC}$ (> , < , = , ≥)

2- Answer each of the following: 8

a If $x : y = 2 : 5$, find the value of: $(10x + 3y) : (5x + 2y)$

b If: $\frac{x+y}{7} = \frac{y+Z}{5} = \frac{x+Z}{8}$, find the value of: $\frac{x+y+Z}{x-Z}$

c If $X \times Y = \{(3,3), (4,3), (3,7), (4,7), (3,8), (4,8)\}$, find each of the following

(1) X , Y (2) $Y \times (X \cap Y)$ (3) $(X - Y) \times (Y - X)$

(4) $n(Y^2)$ (5) $n(X^2)$

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d If R is a relation from X to Y and R = {(2,2) , (0,2) , (3,1) ,(4,2)}:

(1) Write the relation in a table form.

(2) Represent the relation graphically

(3) Find the domain and the range of the relation

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2026

MATHEMATICS

إجابات نماذج اختبارات الأضواء

لشهر مارس

الصف 2 الإعدادى

الفصل الدراسى الثانى

موقع الدكتور محمد رزق معلم الكيمياء التعليمي D.M.RAZK

MODEL I

1- Choose the correct answer:

a What is the second proportional for the numbers 4 , 6 , 12? ..... (18 , 8 , 6 , 2)

b If $\frac{a}{b} = \frac{c}{d} = \frac{2}{3}$, then $\frac{a+c}{b+d}$ = ... ($\frac{4}{3}$, $\frac{4}{9}$, $\frac{1}{3}$, $\frac{2}{3}$)

2- Answer each of the following:

a If X = {5} , Y= {2 , 3} , Z ={2 , 4 , 5}, find each of the following:

(1) Y × (Y ∪ Z) (2)(X ∩ Z)×(Y ∩ Z) (3) (Z - Y) × (Z - X)

(1) Y × (Y ∪ Z) = {2 , 3} × {2 , 3 , 4 , 5}

= {(2 ,2) , (2 ,3) , (2 , 4) , (2 , 5) , (3 ,2) , (3 , 3) , (3 ,4) ,(3 , 5)}

(2) (X ∩ Z)×(Y ∩ Z) = {5} × {2} = {(5 , 2)}

(3) (Z - Y) × (Z - X) = {4 , 5}× {2 , 4}

= {(4 , 2) , (4 , 4) , (5 , 2) , (5 ,4)}

b If $f(x) = 2x + 3$ and $f(k) = 11$,find the value of k:

$\because f(x) = 2x + 3 , f(k) = 11$

$\therefore 2(k) + 3 = 11$

$\therefore 2(k) = 11 - 3$

$\therefore 2(k) = 8 \ (\div 2)$

$\therefore k = 4$

c If x , y , 27 are in proportion, and $x - y = 30$, find each of x , y

$\because x$, y , 27 are in proportion

$\therefore \frac{x - y}{y - 27} = \frac{y}{27}$

$\therefore y^2 - 27y = 810$

$\therefore (y - 45)(y + 18) = 0$

$\therefore \frac{x}{y} = \frac{y}{27}$

$\therefore \frac{30}{y - 27} = \frac{y}{27}$

$\therefore y^2 - 27y - 810 = 0$

$\therefore y = 45$ or $y = -18$

$\therefore x = 75$ or $x = 12$

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d Find the solution set of the following inequality in $\mathbb{R}$ and represent it on the number line.:

$$6 - 3y \leq 2(y - 2)$$

$\because 6 - 3y \leq 2(y - 2)$ $\therefore 6 - 3y \leq 2y - 4$

$\therefore -3y - 2y \leq -4 - 6$ $\therefore -5y \leq -10$

$\therefore -5y \leq -10 \ (\div -5)$ $\therefore y \geq 2$

$\therefore$ The solution set $= [2, \infty[$

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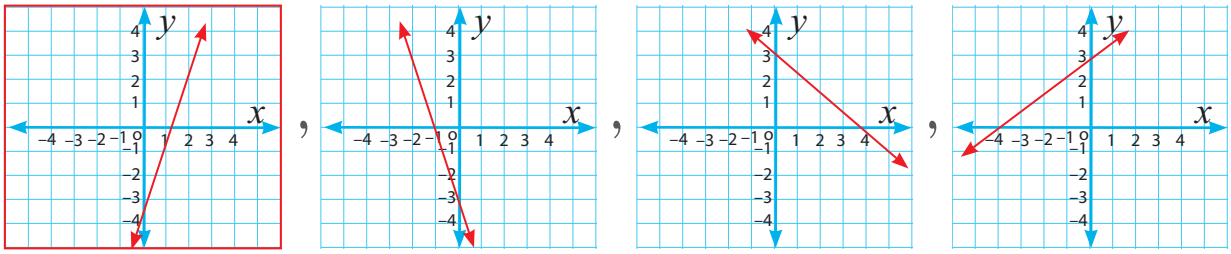
MODEL 2

1- Choose the correct answer:

a Which of the following graphs represent the function: $f(x)=3x-4$?



b If (a , 3) = (– 2 , b), then a+ b = ... (– 5 , – 1 , 1 , 5)

2- Answer each of the following:

a If $\frac{2x+3}{2x-3}=\frac{2y+5}{2y-5}$, then prove that: $\frac{x}{y}=\frac{3}{5}$

$\because \frac{2x+3}{2x-3}=\frac{2y+5}{2y-5}$

$\therefore (2x+3)(2y-5)=(2x-3)(2y+5)$

$\therefore 4xy+-10x+6y-15=4xy+10x-6y-15$

$\therefore -10x-10x+6y+6y=0$

$\therefore -20x=-12y$ $\therefore \frac{x}{y}=\frac{-12}{-20}=\frac{3}{5}$

b Find the solution set of the following inequality in $\mathbb{R}$ and represent it on the number line:

$$1 \leq 4-3(x-1) < 13$$

$\because 1 \leq 4-3(x-1) < 13$ $\therefore 1 \leq 4-3x+3 < 13$ $\therefore 1 \leq -3x+7 < 13$

$\therefore 1-7 \leq -3x < 13-7$ $\therefore -6 \leq -3x < 6$ $\therefore \frac{-6}{-3} \geq \frac{-3}{-3}x > \frac{6}{-3}$

$\therefore 2 \geq x > -2$ $\therefore$ The solution set=] -2 , 2]

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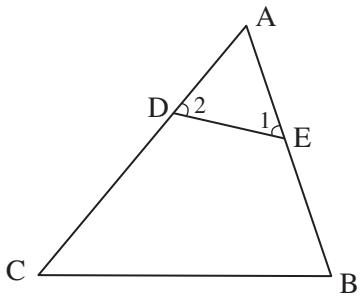
c In the following figure:



$AC > AB$, $m(\angle 1) = m(\angle 2)$

prove that: $DC > EB$

$\because$ $m(\angle 1) = m(\angle 2)$ $\therefore AD = AE$

$\therefore AC > AB$

$\therefore AC - AD > AB - AE$

$\therefore DC > EB$

d Find the number which if added to each of the numbers: 7 , 12 , 11 , 18 they become proportional numbers:

Let the number is m.

$\therefore \frac{7+m}{12+m} = \frac{11+m}{18+m}$ $\therefore (7+m)(18+m) = (12+m)(11+m)$

$\therefore 126 + 25m + m^2 = 132 + 23m + m^2$

$\therefore 25m - 23m = 132 - 126$

$\therefore 2m = 6$ $\therefore m = 3$

$\therefore$ The number is 3.

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MODEL 3

1- Choose the correct answer:

a If $f(x) = x^2$, $g(x) = x + 4$, what is the value of: $5f(2) + 2g(5)$? .....

(18 , 20 , 70 , 38)

b In Δ ABC: 1 ..... $\frac{AB+BC}{AC}$ (> , < , = , ≥)

2- Answer each of the following:

a If $x : y = 2 : 5$, find the value of: $(10x + 3y) : (5x + 2y)$

$\because x : y = 2 : 5 \quad \therefore \frac{x}{2} = \frac{y}{5}$ assuming that: $\frac{x}{2} = \frac{y}{5} = k$

$\therefore x = 2k \ , \ y = 5k$

$\therefore \frac{10x + 3y}{5x + 2y} = \frac{10(2k) + 3(5k)}{5(2k) + 2(5k)}$

$= \frac{20k + 15k}{10k + 10k} = \frac{35k}{20k} = \frac{7}{4}$

$\therefore (10x + 3y) : (5x + 2y) = 7 : 4$

b If: $\frac{x+y}{7} = \frac{y+Z}{5} = \frac{x+Z}{8}$, find the value of: $\frac{x+y+Z}{x-Z}$

By adding the antecedents and consequents of the three ratios:

$\frac{x+y+y+z+x+z}{7+5+8} = \frac{2x + 2y + 2z}{20}$

$= \frac{x+y+z}{10} =$ one of the ratios (1)

By multiplying the terms of 2nd ratio by (–1) and add the antecedents and consequents of 1st and 2nd ratios:

$\frac{x+y-y-z}{7-5} = \frac{x-z}{2} =$ one of the ratios (2)

From (1) and (2):

$\frac{x+y+z}{10} = \frac{x-z}{2}$

$\frac{x+y+z}{x-z} = \frac{10}{2} = 5$

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c If $X \times Y = \{(3,3), (4,3), (3,7), (4,7), (3,8), (4,8)\}$, find each of the following

(1) X , Y **(2)** $Y \times (X \cap Y)$ **(3)** $(X - Y) \times (Y - X)$

(4) $n(Y^2)$ **(5)** $n(X^2)$

(1) $X = \{3 , 4\}$, $Y = \{3 , 7 , 8\}$

(2) $Y \times (X \cap Y) = \{3 , 7 , 8\} \times \{3\} = \{(3 , 3) , (7 , 3) , (8 , 3)\}$

(3) $(X - Y) \times (Y - X) = \{4\} \times \{7 , 8\} = \{(4 , 7) , (4 , 8)\}$

(4) $n(Y^2) = n(Y) \times n(Y) = 3 \times 3 = 9$

(5) $n(X^2) = n(X) \times n(X) = 2 \times 2 = 4$

d If R is a relation from X to Y and $R = \{(2,2) , (0,2) , (3,1) , (4,2)\}$:

(1) Write the relation in a table form.

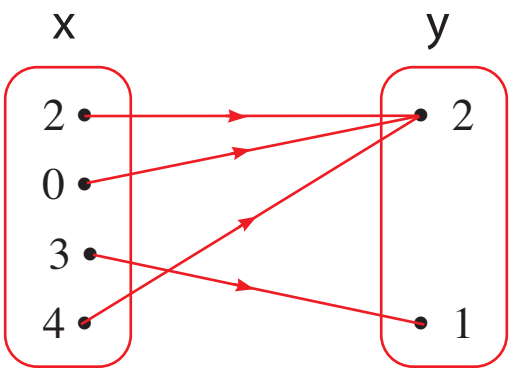
(2) Represent the relation graphically

(3) Find the domain and the range of the relation

(1) In the table form

x	2	0	3	4
y	2	2	1	2

(2)



(3)The domain $= \{2 , 0 , 3 , 4\}$, The range $= \{2 , 1\}$

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Dr.MoRizK